**Grouping INDIAN states into three groups**

**AIM:**

To analyse and group Indian states based on any attribute into three groups.

**Tools used:**

* Perplexity, ChatGPT (AI tools)
* Python Libraries: pandas and matplotlib
* IDE: VScode

**Attribute Selected:** Female Labour Force Participation Rate  
 **Algorithm:** K-Means Clustering Algorithm

**Steps I followed:**

First of all, I chose the attribute to group the Indian State into three categories. Once I did, I used “Perplexity” and “ChatGPT” for proceeding further. With that, I gathered state-wise FLFPR data for all Indian states and loaded the data into a pandas’ DataFrame for analysis. Then I applied the K-Means clustering algorithm to group the states into three clusters based on Labour rate. To allow visual interpretation I created a bar plot using matplotlib, with states on the x-axis, FLFPR on the y-axis, and color-coded clusters. The legend was then customized to display the group names (LOW, MEDIUM, HIGH) along with their respective ranges. Finally, the grouped states under each category for clear interpretation.  
  
Prompts I used:

>> Indian States

>> to use k means clustering algorithm to group the Indian states into 3 groups based on state wise female labour rate

>> I want the legend to be written as LOW and its range likewise for all and also the grouped states should also be printed

**Conclusion:**

This approach enables a clear, data-driven grouping of Indian states based on female labour force participation. The use of K-Means clustering and clear visualization makes the results easy to interpret.